

# **Antimicrobial Resistance Challenges in the DoD**

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Picture: K. Lounatmaa, WHO

**Bacteria manifesting drug resistance in culture**

# **IOM Forum on Emerging Infections**

## **Antimicrobial Resistance (July 1997)**

**Everything we do to expose bacteria to drugs (I,e. prescribe for infections, develop new drugs) gives bacteria the opportunity to develop resistance.**

**Therefore in combating antimicrobial resistance as a public health and clinical threat, we need to focus on**

- controlling or slowing its emergence**
- preventing its spread (containment)**



# **The US Interagency Task Force Action Plan to Combat Antimicrobial Resistance**

- January 2001**
- Federal blueprint for addressing the emerging threat of antimicrobial resistance (AR)**
- CDC, FDA, NIH (Co-chairs), AHRQ, CMS, HRSA, USDA, DVA, EPA, USAID and DoD**
- Part 1: Domestic, Part 2: International**
- Annual Reports: inventory of projects/activities undertaken by Agencies to implement the plan.**



**Inventory of Projects**  
**DOD submission (April 2004)**  
**Progress Report: Implementation of**  
**A Public Health Action Plan To Combat Antimicrobial Resistance (Part I: Domestic Issues)**  
**June 2004**

<u>AGENCY</u>	<u>PROJECT TITLE</u>	<u>DESCRIPTION</u>	<u>STATUS</u>
<b>Focus Area I: Surveillance</b>			
<b>Action Item #1: Determine Which Organisms and Susceptibility to Specific Antimicrobial Drugs Should Be under Surveillance and Create a Mechanism for Periodic Updating of This List.</b>			
CDC, USDA, FDA, DoD, VA	Public Health Surveillance	Organisms currently under public health surveillance for antimicrobial resistance include: <i>Campylobacter</i> , <i>E. coli</i> O157:H7, Gram negative and Gram positive organisms causing health care associated infections, group A <i>Streptococcus</i> , group B <i>Streptococcus</i> , <i>Haemophilus influenzae</i> , <i>Helicobacter pylori</i> , HIV, Influenza, Malaria, <i>Mycobacterium tuberculosis</i> , <i>Neisseria gonorrhoeae</i> , <i>Neisseria meningitidis</i> , <i>Pneumocystis carinii</i> , <i>Salmonella</i> , <i>Shigella</i> , <i>Staphylococcus aureus</i> , <i>Streptococcus pneumoniae</i> , <i>Streptococcus pyogenes</i> , and <i>Trichomonas vaginalis</i> . Organisms are added to this list when resistance emerges as a public health problem, as tools are developed for detecting resistance, and when there is capacity at the appropriate level.	Ongoing. ■
<b>**TOP PRIORITY**</b>			
<b>Action Item #2: With Partners, Design and Implement a National AR Surveillance Plan.</b>			
CDC, DoD	Gonococcal Isolate Surveillance Project (GISP)	Sentinel surveillance system for monitoring AR of <i>Neisseria gonorrhoeae</i> in the United States established in 1986. Male urethral gonococcal isolates together with clinical and	Ongoing. GISP data were used to revise the latest version of CDC's Sexually Transmitted Diseases Treatment Guidelines which were published in 2003. In 2002, several new sites were

# **US Interagency Task Force Action Plan to Combat Antimicrobial Resistance**

## **1. Surveillance (20 action items, 2 priority)**

**Develop and implement a coordinated national plan for monitoring AR**

- Ensure the availability of reliable drug susceptibility data**
- Track patterns of antimicrobial drug use**
- Monitor AR in agricultural settings**



# **US Interagency Task Force Action Plan to Combat Antimicrobial Resistance**

## **2. Prevention and Control (45 action items, 5 priority)**

**Extend the useful life of antimicrobials through**

- policies that discourage overuse and misuse**
- Improve diagnostic testing practices**
- Prevent infection transmission through improved infection-control methods and use of vaccines**



# **US Interagency Task Force Action Plan to Combat Antimicrobial Resistance**

## **3. Research** (11 action items, 3 priority)

**Basic and clinical to provide the knowledge necessary to develop appropriate responses to AR in hospitals, communities, farms and food supply**

- Microbe physiology, ecology, genetics, and mechanisms of resistance**
- Augment existing research**
- Translate into clinically useful products, novel approaches to detecting, preventing and treating AR infections**





# **US Interagency Task Force Action Plan to Combat Antimicrobial Resistance**

## **4. Product Development (6 action items, 2 priority)**

**Focus on current and projected gaps in the arsenal of**

- Antimicrobial drugs**
- Vaccines**
- Diagnostics**





Picture: L. Stannard, WHO

**Salmonella**



## DoD Activities in Antimicrobial Resistance

Components of US Interagency Task Force Action Plan for Combating Antimicrobial Resistance (Domestic)						
Focus Area	Action Item (US Priority = *; [] = item number in national plan)	implementer location:	Identified Current DoD Activities:			
			MTF	Service	MHS/DoD	OCONUS
Surveillance						
Purpose <sup>3</sup> : Defining/updating guidelines for empiric (syndromic) treatment and standard treatment guidelines; reassessing DoD and MTF formulary; assuring drug supply is appropriate for need; identifying need for implementation of infection control measures; monitoring impact of intervention to improve antimicrobial use and to control the emergence and spread of infection.						
	*Design and implement an AR surveillance plan that: defines DoD, MHS, Service and MTF surveillance activities and the roles of clinical, reference, public health and veterinary (other relevant) laboratories; and is consistent with national surveillance methodology and infrastructure. [2]		GISP, 1 MTF		TSN, 3 MTF	
	*Develop and implement procedures for monitoring patterns of antimicrobial drug use including linking drug use data to clinical				ESSENCE	

# Task Force Action Plan Applied to DoD

- 1. Surveillance** – Defining/updating guidelines for empiric (syndromic) treatment and standard treatment guidelines; reassessing DoD and MTF formulary; assuring drug supply is appropriate for need; identifying need for implementation of infection control measures; monitoring impact of intervention to improve antimicrobial use and to control the emergence and spread of infection.



# Task Force Action Plan Applied to DoD

2. **Prevention and Control** - Promote the appropriate use of antimicrobial drugs and prevent the transmission of infections (whether drug-resistant or not)
3. **Research** - Develop basic and clinical knowledge and tools for appropriately addressing AR emergence and spread.
4. **Product Development** - Meet need for new classes of antimicrobial agents able to kill otherwise resistant organisms, vaccines and anti-infective devices to prevent infections, and better diagnostic tools to aid in appropriate use of therapeutics.



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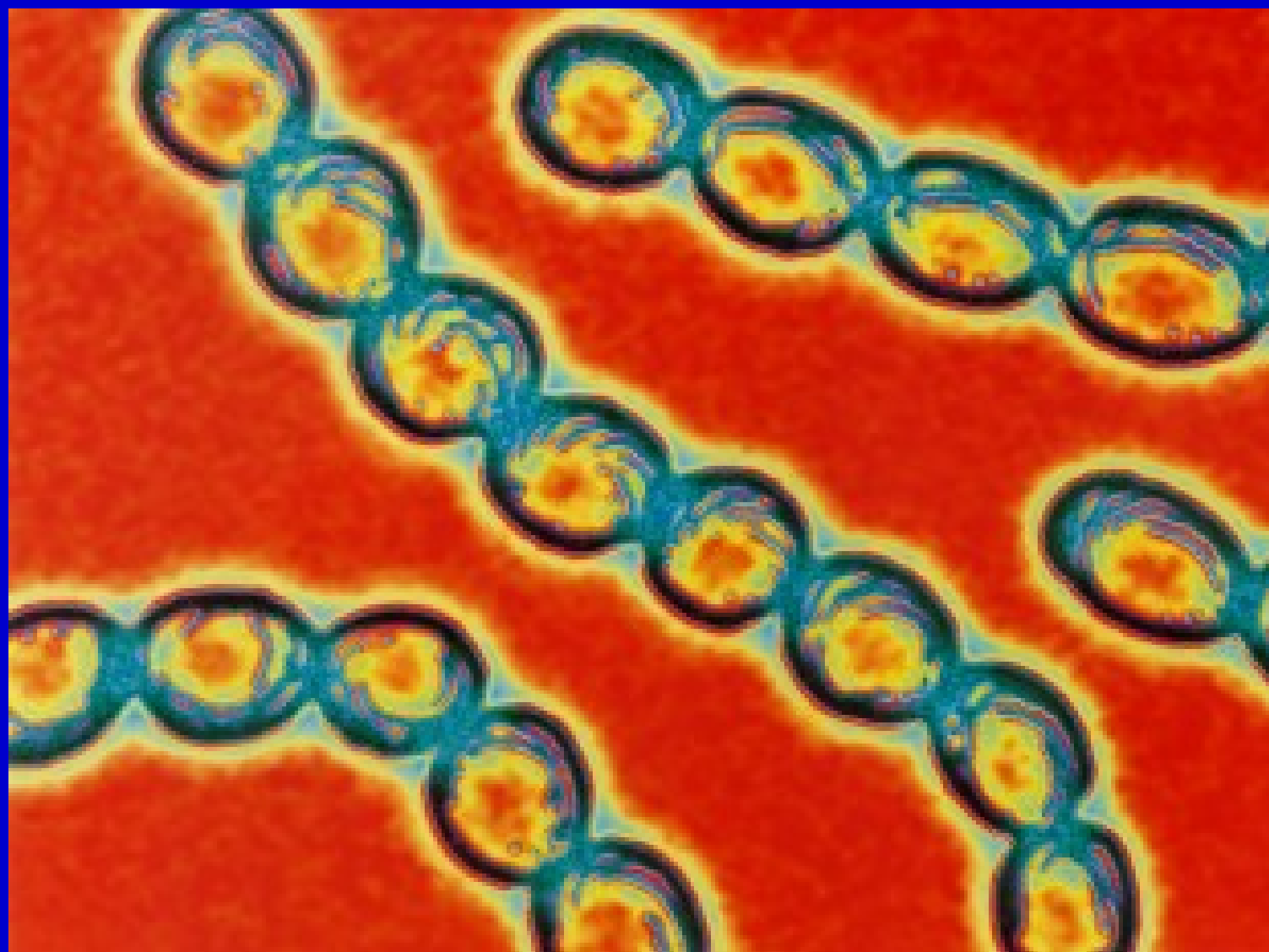
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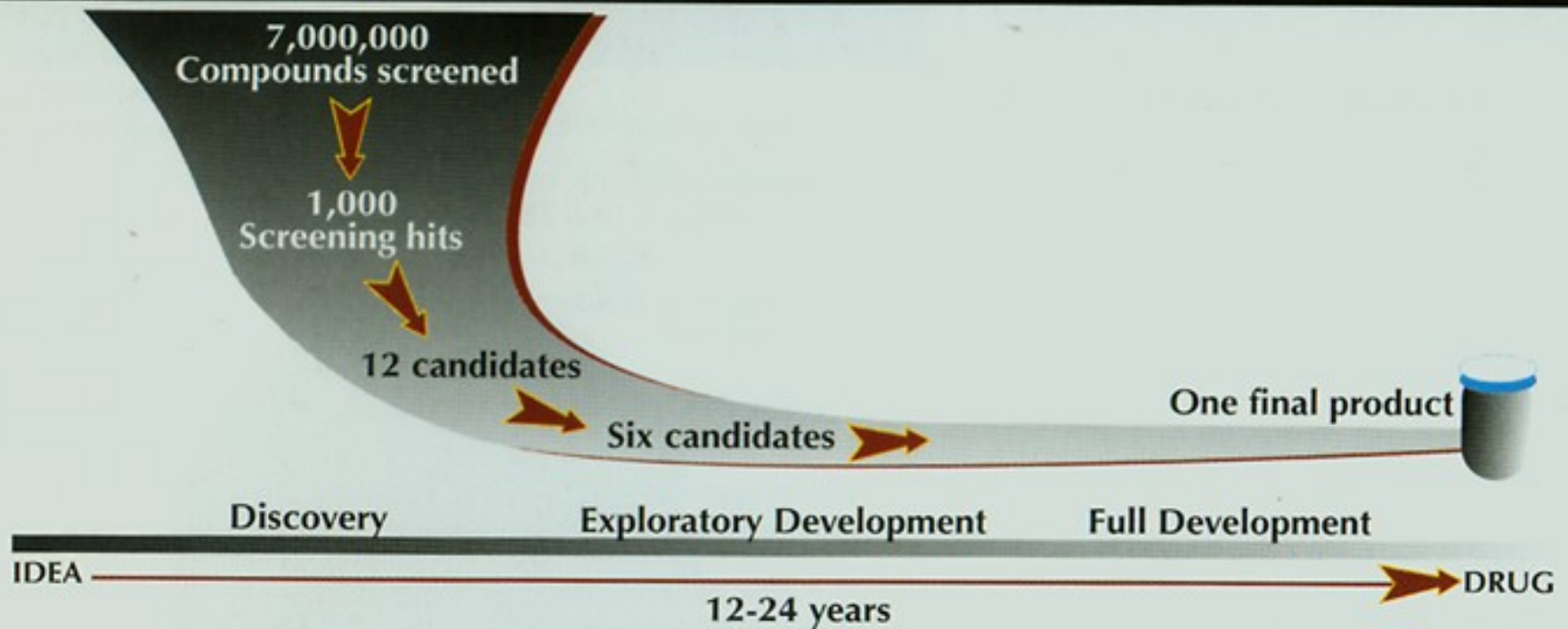
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**Streptococcus bacteria** Picture: A. Pasiaka

## ATTRITION ON THE ROAD: Research and development of new drugs



Source: Pfizer Inc